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SOIL SURVEY INTERPRETATIONS FOR WOODLANDS

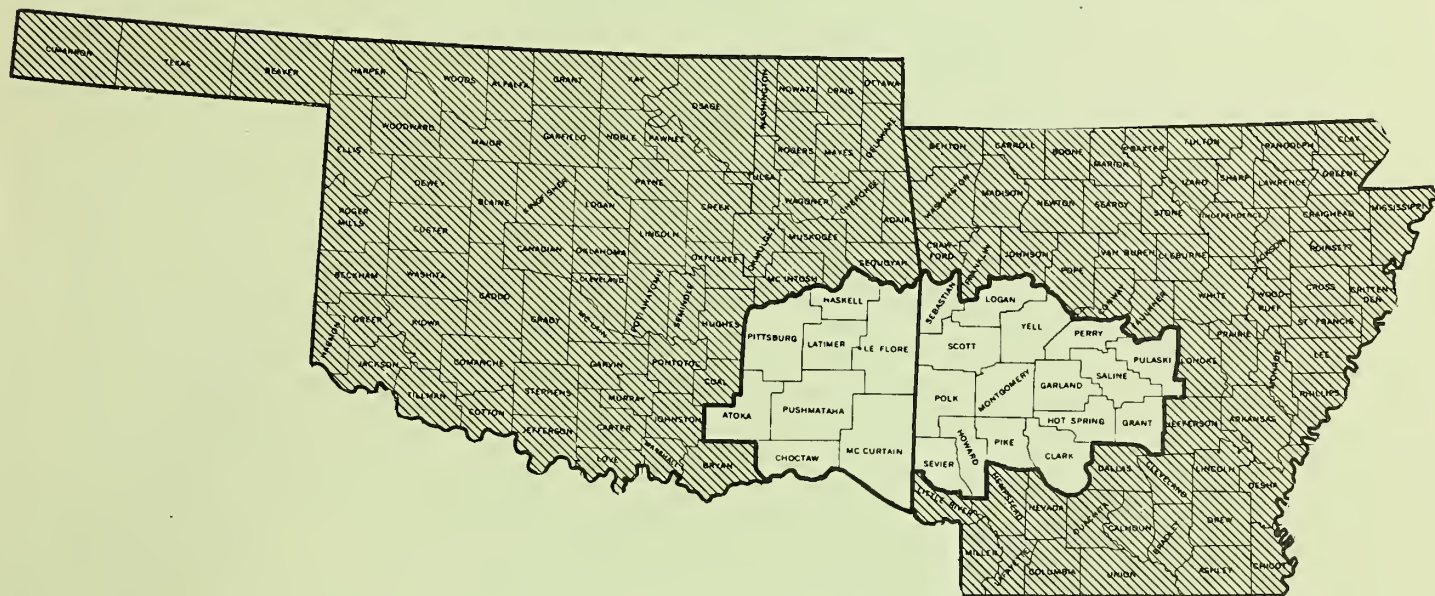
IN THE
OUACHITA MOUNTAINS

OF
OKLAHOMA AND ARKANSAS

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PROGRESS REPORT W-8 - - JANUARY 1969

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Fort Worth, Texas

This report contains interpretations of soil surveys for woodland use and management in the Ouachita Mountains area of Oklahoma, and Arkansas. The purpose is to provide currently available knowledge about soils as they relate to the establishment, growth, management, and harvesting of wood crops for the use of foresters, agricultural workers, woodland owners and woodland managers. The information will be used by the Soil Conservation Service and cooperating agencies in the development of technical guides, soil handbooks and published soil survey reports.

Field information was gathered by teams of foresters and soil scientists. Representatives of Federal and State agencies, the wood-using industry, and others cooperated in gathering field data. The interpretations presented herein are made for use with soil surveys.

Table 2, SOIL RATINGS FOR WOODLAND USE, includes some evaluations for individual soils. The soil series listed are those defined according to the current soil classification system and includes portions of soil associations mapped in low intensity surveys. In column one (1) erosion and texture phases were consolidated within a soil series where no differences in productivity, species suitability or management problems existed.

Column two (2) includes a list of some of the commercially important tree species which are adapted to the soil in column one. These are the tree species which woodland managers generally favor in intermediate or improvement cuttings, after considering the form and vigor of individual trees. Priority between species will be influenced by local marketability and the owners objectives, as well as the quality of wood products from a given species.

Column three (3) indicates the average site index for the most important species listed in column two. The standard deviation is shown as a plus or minus figure (\pm) for each species where five or more plots were taken on the

mapping units listed in column one. The site index curves used for each tree species are shown in Table 1, GUIDE FOR WOODLAND SUITABILITY CLASSES. An asterisk (*) following the site index rating indicates the rating is an estimate based on the same species on a similar soil, or by comparison with another species on the same soil. Site index is the average height of dominant trees at age 30 for cottonwood, age 35 for sycamore, and age 50 for all other species.

Column four (4) indicates the range of site index of the most important tree species in column two. The range in site index values is dependent on soil physical conditions, aeration, and nutrient and moisture availability during the growing season.

Column five (5) evaluates the potential erosion hazard of the soil in woodland use following cutting operations, or where the soil is exposed along roads, trails, firebreaks, or log-yarding areas. A rating of slight indicates that problems of erosion control are unimportant. A rating of moderate indicates some attention must be given to prevent unnecessary soil erosion. A rating of severe indicates that intensive treatments, or special equipment and methods of operation should be planned to minimize soil erosion. The potential erosion hazard is based on slope, soil depth, and erodibility, and soil loss tolerance.

Column six (6) includes evaluation of equipment restrictions. Ratings reflect limitations in the use of equipment for managing or harvesting the tree crop. A rating of slight indicates equipment use is seldom limited in kind or time of year. A rating of moderate indicates a need for modified equipment or seasonal restrictions due to slope, stones, obstructions, soil wetness, flooding, or overflows. A rating of severe indicates the need for specialized equipment due to one or more of the factors listed above.

Column seven (7) indicates the degree of expected seedling mortality during the first two growing seasons after planting or seeding. Normal rainfall, adequate site preparation, good planting stock, proper planting methods, and appropriate protection and cultivation are assumed. A rating of slight indicates that unsatisfactory survival on less than 25 percent of the area is likely. A rating of moderate indicates that unsatisfactory survival is likely on 25 to 50 percent of the area planted. A rating of severe indicates that unsatisfactory survival is likely on more than 50 percent of the area.

It will be noted that aspect on slopes greater than 20 percent are ordained as being "hot" or "cool" slopes. Hot slopes include those which have south and west aspects; from 135 degrees azimuth (clockwise) to 315 degrees; and cool slopes are those which have north and east aspects, from 315 degrees (clockwise) to 135 degrees. Column seven implies that seedling mortality is greater on hot slopes than on cool slopes.

Column eight (8) lists several suitable tree species for planting on the soil named in column one. The list may include some species which do not normally occur in native stands on the designated soil or in this physiographic area, as well as some of the important species listed in column two.

Column nine (9) shows the ordination of the soils into a woodland suitability group. A woodland suitability group is made up of kinds of soil that are capable of producing similar kinds of wood crops, that need similar management to produce these crops, and that have about the same potential productivity. The ordination system and the suitability group symbols are explained in the following paragraphs.

The first element of the group symbol indicates the woodland suitability class. It expresses site quality by an arabic numeral ranging from 1 to 5, with class 1 the highest in potential productivity, followed by class 2, 3, 4,

and 5. It is based on the average site index of one or more indicator forest types or tree species, as shown in Table 1, GUIDE FOR WOODLAND SUITABILITY CLASSES. The indicator species are underscored in column two of Table 2.

The second element in the symbol indicates the suitability subclass. It expresses selected soil properties that cause moderate to severe hazards or limitations in woodland use or management, by one of the following lower case arabic letters:

Subclass x (stoniness or rockiness). Soils having restrictions or limitations for woodland use or management due to stones or rocks.

Subclass w (excessive wetness). Soils in which excessive water, either seasonally or year long, causes significant limitations for woodland use or management. These soils have restricted drainage, high water tables, or overflow hazards which adversely affect either stand development or management.

Subclass d (restricted rooting depth). Soils with restrictions or limitations for woodland use or management due to restricted rooting depths. Soils shallow to hard rock, hardpan, or other layers in the soil that restrict roots are examples.

Subclass c (clayey soils). Soils having restrictions or limitations for woodland use or management due to the kind or amount of clay in the upper portion of the soil profile.

Subclass s (sandy soils). Sandy soils with little or no textural B horizons and having moderate to severe restrictions or limitations for woodland use or management. These soils impose equipment limitations, have low moisture holding capacity, and normally are low in available plant nutrients.

Subclass f (fragmental or skeletal soils). Soils with restrictions or limitations for woodland use or management due to large amounts of coarse fragments in the profile over 2 mm and less than 10 inches, but includes flaggy soils.

Subclass r (relief or slope steepness). Soils with restrictions or limitations for woodland use or management due only to steepness or slope.

Subclass o (slight or no limitations). Soils with no significant restrictions or limitations for woodland use or management.

Some kinds of soil may have more than one set of subclass characteristics.

Priority in placing each kind of soil into a subclass is in the order that the subclass characteristics are listed above.

The third element in the symbol indicates the degree of hazards or limitations, and the general suitability of the soils for certain kinds of trees. The three management problems considered here are: (1) erosion hazard, (2) equipment restrictions, and (3) seedling mortality.

The numeral 1 indicates soils with no to slight management problems, and they are best suited for needleleaf trees.

The numeral 2 indicates soils with one or more moderate management problems, and they are best suited for needleleaf trees.

The numeral 3 indicates soils with one or more severe management problems, and they are best suited for needleleaf trees.

The numeral 4 indicates soils with no to slight management problems, and they are best suited for broadleaf trees.

The numeral 5 indicates soils with one or more moderate management problems, and they are best suited for broadleaf trees.

The numeral 6 indicates soils with one or more severe management

problems, and they are best suited for broadleaf trees.

The numeral 7 indicates soils with no to slight management problems, and they are suitable for either needleleaf or broadleaf trees.

The numeral 8 indicates soils with one or more moderate management problems, and they are suitable for either needleleaf or broadleaf trees.

The numeral 9 indicates soils with one or more severe management problems, and they are suitable for either needleleaf or broadleaf trees.

The numeral 0 indicates the soils are not suitable for the production of major commercial wood products.

TABLE 1 - GUIDE FOR WOODLAND SUITABILITY CLASSES
OUACHITA HIGHLANDS

	:	1	:	2	:	3	:	4	:	5
Indicator Forest	:	Very	:		:	Moderately	:		:	
Type or Species	:	High	:	High	:	High	:	Moderate	:	Low
	:	Site Index								
Cottonwood	(1):	106+	:	96-105	:	86-95	:	76-85	:	75-
Yellow-poplar	(2):	106+	:	96-105	:	86-95	:	76-85	:	75-
Sweetgum	(3):	96+	:	86-95	:	76-85	:	66-75	:	65-
Water oaks	(4):	96+	:	86-95	:	76-85	:	66-75	:	65-
Nuttall oak	(5):	96+	:	86-95	:	76-85	:	66-75	:	65-
Loblolly pine	(6):	96+	:	86-95	:	76-85	:	66-75	:	65-
Shortleaf pine	(6):	86+	:	76-85	:	66-75	:	56-65	:	55-
Sou.-red oak	(7):	86+	:	76-85	:	66-75	:	56-65	:	55-
Redcedar	(8):	66+	:	56-65	:	46-55	:	35-45	:	35-
	:		:		:		:		:	

- (1) Broadfoot, W. M., 1960, Field Guide for Evaluating Cottonwood Sites, USFS Occ. Paper 178 (Fig. 4).
- (2) Doolittle, W. T., 1957, Site Index Curves for Yellow-poplar-So. Appalachians.
- (3) Broadfoot, W. M., 1959, Guide for Evaluating Sweetgum Sites, USFS Occ. Paper 176 (Fig. 4).
- (4) Broadfoot, W. M., 1963, Guide for Evaluating Water Oak Sites in the Mid-South, USFS Res. Paper SO-1 (Fig. 4).
- (5) Broadfoot, W. M., Unpublished manuscript. Sou. For. Expmt. Sta., 1966.
- (6) Coile, T. S. and F. X. Schumacher, Jour. For. 54:432-435 (Fig. 4)
- (7) Schnur, L. G., 1937, Yield, Stand and Volume Tables for Even-Aged Upland Oak Forests, USDA Tech. Bull. 560, Fig. 2.
- (8) TVA 1948, Site Curves, E. Redcedar, Tennessee Valley.

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Soils	Potential Productivity			Management Problems			Species Suitability for Planting 1/	Ordination Woodland Suitability Group
	Tree Species 1/2/	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Alamance</u> fine sandy loam gravelly fine sandy loam, gravelly silt loam, silt loam 1-20% slopes ----- 20%+ slopes	<u>Shortleaf pine</u> Loblolly pine Red oaks Black walnut Redcedar	68+8 72* - - 50*	60-74 65-77 46-55	Slight	Slight	Slight	Shortleaf pine Loblolly pine Red oaks 3/ Black walnut 3/ Redcedar	3o7 ----- 3r9
<u>Altavista</u> fine sandy loam gravelly fine sandy loam, gravelly silt loam, silt loam 1-12% slopes	<u>Shortleaf pine</u> Loblolly pine Red oaks White oak Sweetgum Black walnut Redcedar	77+5 84+5 69+9 60* - - 55*	72-82 79-89 60-78 56-65 46-55	Slight	Moderate	Slight	Loblolly pine Shortleaf pine Red oaks 3/ Black walnut 3/ Redcedar	2w8
<u>Augusta</u> fine sandy loam silt loam, silt loam, mounded, 0-3% slopes	<u>Shortleaf pine</u> Loblolly pine Red oaks Sweetgum Water oaks Cherrybark oak Shumard oak Green ash	78+3 81+6 76* 85* 85* - - -	73-83 75-87 73-83 75-87 75-87	Slight	Moderate	Moderate	Loblolly pine Sweetgum Shumard oak Cherrybark oak Water oaks Green ash	2w8
<u>Braddock</u> gravelly loam 3-20% slopes ----- 20%+ slopes ----- stony loam 3-20% slopes ----- 20% + slopes	Loblolly pine <u>Shortleaf pine</u> Red oaks 3/ Black walnut 3/ Redcedar	69* 65+7 58+7 - -	65-75 58-72 51-65	Slight	Slight	Slight	Loblolly pine Shortleaf pine Red oaks 3/ Black walnut 3/ Redcedar	4o7 ----- 4r9 ----- 4x8 ----- Moderate to severe Moderate to severe Slight-cool Moderate-hot
<u>Chewacla</u> fine sandy loam gravelly fine sand, gravelly sandy loam, gravelly silt loam, loam, sandy loam, silt loam, 0-3% slopes, undulating	<u>Loblolly pine</u> Sweetgum Water oaks Cottonwood Green ash Cherrybark oak Shumard oak Red oaks Nuttall oak Sycamore	89* 90 90 100 - - - - - -	85-95 86-95 86-95 96-105	Slight	Moderate	Moderate	Loblolly pine Cherrybark oak Shumard oak Nuttall oak Sweetgum Water oak Green ash Cottonwood 4/ Sycamore 4/	2w8
<u>Congaree</u> fine sandy loam gravelly fine sandy loam, gravelly loam, gravelly sandy loam, gravelly silt loam, loam, sandy loam, silt loam, 0-3% slope undulating	<u>Loblolly pine</u> Shortleaf pine Red oaks Water oaks Sweetgum Cottonwood Cherrybark oak Shumard oak Sycamore Black walnut	87+1 82+7 84* 90 90 100 - - - -	82-92 75-89 76-85 86-95 86-95 96-105	Slight	Slight	Slight	Loblolly pine Cherrybark oak Shumard oak Black walnut Cottonwood 4/ Sycamore 4/ Sweetgum Water oaks	2o7

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Soils	Potential Productivity			Management Problems			Species Suitability for Planting 1/	Ordination Woodland Suitability Group
	Tree Species 1/ 2/	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Davidson</u> loam, 1-20% slopes	Loblolly pine <u>Shortleaf pine</u> Red oaks Redcedar Black walnut Black cherry White oak	70* 65* 65 45 - - -	66-75 56-65 56-65 36-45	Slight	Slight	Slight	Loblolly pine Shortleaf pine Redcedar Black walnut 3/ Red oaks 3/	4o7
<u>Edgemont</u> fine sandy loam, gravelly fine sandy loam, gravelly loam, loam 1-20% slopes	Loblolly pine <u>Shortleaf pine</u> Red oaks Redcedar White oak Black walnut Black cherry	77* 72+8 71+9 50* 69* - -	76-85 64-80 62-80 46-55 66-75	Slight	Slight	Slight	Loblolly pine Shortleaf pine Black walnut 3/ Red oaks 3/ Redcedar	3o7
<u>Ennis</u> soils cobbly and gravelly, stony silt loam	Shortleaf pine Red oaks White oak Redcedar Loblolly pine Black walnut White ash Black cherry Black locust Sweetgum Sycamore Cottonwood Water oaks River birch	70* 71+2 66* 50* - - - - - - - - - - -	66-75 66-75 61-71 46-55	Slight	Severe	Severe	Shortleaf pine Loblolly pine Red oaks Black walnut Black locust White ash White oak Sweetgum Cottonwood 4/ Sycamore 4/	3x9
<u>Georgeville</u> fine sandy loam gravelly fine sandy loam, gravelly silt loam, silt loam, 1-20% slopes ----- stony silt loam 1-20% slopes 20%+ slopes	Loblolly pine <u>Shortleaf pine</u> Red oaks White oak Redcedar Black Walnut Black cherry	72* 68+11 67 57 50 - -	67-77 57-79 66-75 52-62 46-55	Slight	Slight	Slight	Loblolly pine Shortleaf pine Red oaks 3/ Black walnut 3/ Redcedar	3o7
					Moderate			3x8
				Moderate to severe	Moderate to severe	Slight-cool Moderate-hot		
<u>Goldston</u> fine sandy loam, gravelly fine sandy loam, gravelly silt loam, silt loam, slaty silt loam, 1-12% slopes 12-20% slopes 20%+ slopes ----- stony fine sandy loam, stony silt loam, 1-12% slopes 12-20% slopes 20%+ slopes	Loblolly pine <u>Shortleaf pine</u> Red oaks White oak Redcedar	65* 62+7 60+6 55+5 40* ----- ----- ----- -----	60-74 55-69 54-66 50-60 36-45	Slight	Slight	Moderate	Loblolly pine Shortleaf pine Redcedar	4d2
				Moderate Severe	Moderate to Severe	Moderate cool Severe-hot		
				Slight	Moderate	Moderate		
				Moderate Severe	Moderate	Moderate cool Severe-hot		
					Severe			

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Soils	Potential Productivity			Management Problems			Species Suitability for Planting 1/	Ordination Woodland Suitability Group
	Tree Species 1/2/	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Herndon</u> fine sandy loam gravelly fine sandy loam, gravelly silt loam, silt loam 1-20% slopes ----- stony fine sandy loam, 1-20% slopes	Loblolly pine <u>Shortleaf pine</u> Red oaks 3/ White oak 3/ Redcedar Black walnut 3/ Black cherry	62 60+10 65+13 57 40* - -	57-67 50-70 52-78 52-62 36-45	Slight	Slight ----- Moderate	Slight	Loblolly pine Shortleaf pine Redcedar Black walnut 3/ Red oaks 3/	4o7 ----- 4x8
<u>Hiwassee</u> fine sandy loam, gravelly fine sandy loam, gravelly sandy loam, sandy loam, silt loam, 1-20% slopes ----- stony silt loam 1-20% slopes	Loblolly pine <u>Shortleaf pine</u> Red oaks Redcedar White oak Sweetgum Cherrybark oak Black walnut Black cherry	80 69+9 70 50* 60 - - - -	76-85 60-78 66-75 46-55 56-65	Slight	Slight ----- Moderate	Slight	Loblolly pine Shortleaf pine Red oaks 3/ Black walnut 3/ Cherrybark oak 3/ Sweetgum 3/ Redcedar	3o7 ----- 3x8
<u>Lee</u> fine sandy loam 0-3% slopes	Cottonwood <u>Southern red oak</u> Sycamore Sweetgum Shumard oak Cow oak	90 84+3 - - - -	86-95 79-89	Slight	Severe	Severe	Cottonwood 4/ Sycamore 4/ Sweetgum Shumard oak Cow oak	2w6
<u>Linker</u> fine sandy loam, gravelly fine sandy loam, gravelly loam, gravelly silt loam, loam, loam thick surface, silt loam, 1-20% slopes ----- stony fine sandy loam, stony loam, 1-20% slopes	Loblolly pine <u>Shortleaf pine</u> Redcedar Red oaks White oak Black walnut Black cherry	83+4 67+9 45* 69+6 60+2 - -	78-88 58-76 40-50 63-75 56-65	Slight	Slight ----- Moderate	Slight	Loblolly pine Shortleaf pine Black walnut 3/ Red oaks 3/ Redcedar	3o7 ----- 3x8
<u>Lobelville</u> loam, 0-3% slopes	<u>Loblolly pine</u> Cherrybark oak Sweetgum Cottonwood Sycamore Water oaks	90 90 90 100 90 90	86-95 86-95 86-95 92-108 86-95 86-95	Slight	Moderate	Moderate	Loblolly pine Sweetgum Cherrybark oak Cottonwood 4/ Shumard oak Sycamore 4/	2w8
<u>Ochlocknee</u> fine sandy loam fine sandy loam (undulating), gravelly fine sandy loam, gravelly fine sandy loam (un- dulating), silt loam, silt loam (undulat- ing), sandy loam (undulat- ing), 0-8% slopes	Shortleaf pine Red oaks <u>Sweetgum</u> Cottonwood Sycamore Loblolly pine Green ash Black walnut Water oaks	80* 80* 90* - - - - - -	76-85 76-85 86-95	Slight	Slight	Slight	Loblolly pine Shortleaf pine Cherrybark oak Shumard oak Black walnut Cottonwood 4/ Sycamore 4/ Sweetgum Water oaks	2o7

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Soils	Potential Productivity			Management Problems			Species Suitability for Planting ^{1/}	Ordination Woodland Suitability Group
	Tree Species ^{1/2/}	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Pickens</u> fine sandy loam or stony loam 0-12% slopes 12-20% slopes 20%+ slopes	<u>Shortleaf pine</u> Redcedar Loblolly pine Native vegetation	45 25 - -	40-50 20-30 -	Slight ----- Moderate Severe	Slight ----- Moderate to Severe	Severe	Shortleaf pine (small diameter management) Redcedar	5d3
<u>Porters</u> silt loam 0-20% slopes ----- stony silt loam 1-20% slopes	Loblolly pine <u>Shortleaf pine</u> Redcedar Red oak	65 60 40 60	61-71 56-65 36-45	Slight	Slight ----- Moderate	Slight	Loblolly pine Shortleaf pine Redcedar	4o7 ----- 4x8
<u>Roanoke</u> silt loam mounded, fine sandy loam, silt loam, 0-3% slopes	Loblolly pine <u>Sweetgum</u> Water oaks Nuttall oak Shumard oak	85 85 85 85 85	80-90 80-90 80-90 80-90 76-85	Slight	Severe	Severe	Loblolly pine Sweetgum Water oaks Shumard oak Nuttall oak	3w9
<u>Robinsonville</u> fine sandy loam, sandy loam	Cottonwood Sycamore Sweetgum Green ash Hackberry American elm Red oaks Black locust Shumard oak Water oaks Black walnut	92 - - - - - 80 - - 90 - -	86-95 76-85 86-95	Slight	Slight	Slight	Sycamore 4/ Cottonwood 4/ Green ash Sweetgum Red oaks Water oaks Black walnut Black locust Shumard oak Cow oak	2o4
<u>State</u> fine sandy loam gravelly fine sandy loam, gravelly sandy loam, gravelly silt loam, sandy loam, silt loam 0-12% slopes	Loblolly pine <u>Shortleaf pine</u> Sweetgum Red oaks Redcedar Cherrybark oak Shumard oak Black walnut Black cherry	84* 78+7 90 80 60* - - - - -	79-89 76-85 86-95 76-85 56-65	Slight	Slight	Slight	Loblolly pine Shortleaf pine Cherrybark oak Black walnut Sweetgum Redcedar	2o7
<u>Tate</u> fine sandy loam, gravelly fine sandy loam, gravelly silt loam, silt loam, 3-20% slopes	Loblolly pine <u>Shortleaf pine</u> Red oaks Black walnut Redcedar	67* 64+7 63 - 45*	62-72 59-69 58-68 40-50	Slight	Slight	Slight	Loblolly pine Shortleaf pine Red oaks 3/ Black walnut 3/ Redcedar	4o7
<u>Wehadkee</u> fine sandy loam, gravelly fine sandy loam, gravelly sandy loam, gravelly silt loam, sandy loam, silt loam, 0-3% slopes, undulating.	Loblolly pine <u>Sweetgum</u> Water oaks Cottonwood Nuttall oak Shumard oak Sycamore Green ash Cypress Tupelo gum	85* 90* 90* 100* - - - - - -	76-85 86-95 86-95 96-105	Slight	Severe	Severe	Loblolly pine Cherrybark oak Shumard oak Nuttall oak Sweetgum Water oaks Cottonwood 4/ Sycamore 4/ Green ash	2w9

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Soils	Potential Productivity			Management Problems			Species Suitability for Planting <u>1/</u>	Ordination Woodland Suitability Group
	Tree Species <u>1/2/</u>	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Wickham fine sandy loam, gravelly fine sandy loam, gravelly loam, gravelly silt loam, sandy loam, silt loam, 1-20% slopes soils cobbly 1-20% slopes	Loblolly pine <u>Shortleaf pine</u> Red oaks Redcedar Sweetgum Black walnut Black cherry Cherrybark oak White oak	79* 74+8 68 55* - - - - -	74-84 62-82 63-73 46-55 - - - - -	Slight Slight	Slight Moderate	Slight Moderate	Loblolly pine Shortleaf pine Red oaks <u>3/</u> Black walnut <u>3/</u> Sweetgum <u>3/</u> Cherrybark oak <u>3/</u> Redcedar	3o7 3x8
<p>* Estimated site index based on a similar soil or another species on the same soil.</p> <p><u>1/</u> Red oaks include northern red oak, southern red oak, black oak and scarlet oak.</p> <p><u>2/</u> Underlined species are those selected in determining the site index.</p> <p><u>3/</u> Confine plantings to "cool" slopes, coves, benches and slope bases.</p> <p><u>4/</u> Field plantings only; do not interplant or underplant.</p>								

Table 3, SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY, is a summary of the most important interpretations for a woodland suitability group of soils.

Column one (1) includes the suitability group symbol and brief description of the group of soils, including their important hazards and limitations for woodland use and management.

Column two (2) is a tabulation of the mapping units within each woodland suitability group.

Column three (3) is a list of some commercially-important tree species which occur on the soils in each suitability group.

Column four (4) shows the site class (site index rounded off to the nearest 10-foot interval) for the most important tree species listed in column three.

Column five (5) lists some of the most important tree species which are suitable for planting or direct seeding on the soils in each suitability group.

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Page 1 of 3

Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitability for Planting
		Tree Species 1/	Site Class	
(1)	(2)	(3)	(4)	(5)
<u>2o4</u> Level to nearly level loamy bottomland soils with high potential productivity; no serious management problems; suitable for southern hardwoods.	<u>Robinsonville</u> fine sandy loam to sandy loam.	Cottonwood Sycamore Sweetgum Green ash Hackberry American elm Red oaks Black locust Shumard oak Water oaks Black walnut	90 - - - - - 80 - - - 90 -	Sycamore 4/ Cottonwood 4/ Green ash Sweetgum Red oaks Water oaks Black walnut Black locust Shumard oak Cow oak
<u>2w6</u> Excessively wet soils with high potential productivity; severe equipment limitations and seedling mortality; best suited to southern hardwoods.	<u>Lee</u> fine sandy loam, 0-3 percent slopes.	Cottonwood Sweetgum Sycamore Green ash Hackberry American elm Pecan	90 90 - - - - -	Cottonwood 4/ Sycamore 4/ Sweetgum Green ash
<u>2o7</u> Loamy soils with high potential productivity; no serious management problems; suitable for southern hardwoods or pines	<u>Congaree</u> silt loam to gravelly sandy loam, 0-3% slopes (undulating). <u>Ochlockonee</u> silt loam to gravelly fine sandy loam, 0-8% slopes. <u>State</u> silt loam to sandy loam, 0-12% slopes, slightly or moderately eroded.	Loblolly pine Shortleaf pine Red oaks Water oaks Sweetgum Cottonwood Cherrybark oak Shumard oak Sycamore Black walnut	90 80 80 90 90 100 - - - -	Loblolly pine Cherrybark oak Shumard oak Black walnut Cottonwood 4/ Sycamore 4/ Sweetgum Water oaks
<u>2w8</u> Seasonally wet soils with high potential productivity; moderate equipment limitations and seedling mortality; suitable for southern pines or hardwoods.	<u>Altavista</u> silt loam to gravelly fine sandy loam, 1-12% slopes, slightly or moderately eroded. <u>Augusta</u> silt loam to fine sandy loam, 0-3 percent slopes. <u>Chewacla</u> silt loam to gravelly sandy loam, 0-3 percent slopes. <u>Lobelville</u> loam, 0-3 percent slopes.	Loblolly pine Shortleaf pine Red oaks Sweetgum Water oaks Cottonwood Green ash Sycamore Shumard oak Nuttall oak Cherrybark oak	80 80 80 90 90 100 - - - - -	Loblolly pine Shumard oak Nuttall oak Sweetgum Water oaks Green ash Cottonwood 4/ Sycamore 4/
<u>2w9</u> Excessively wet soils with high potential productivity; severe equipment limitations and seedling mortality; suitable for southern pines or hardwoods.	<u>Wehadkee</u> silt loam to gravelly sandy loam, 0-3% slopes (undulating).	Sweetgum Water oaks Loblolly pine Cottonwood Nuttall oak Shumard oak Sycamore Green ash Cypress Tupelo gum	90 90 90 100 - - - - - -	Loblolly pine Cherrybark oak Shumard oak Nuttall oak Sweetgum Water oaks Cottonwood 4/ Sycamore 4/ Green ash
<u>3o7</u> Upland soils with moderately high potential productivity; no serious management problems; suitable for southern pines or upland hardwoods.	<u>Alamance</u> silt loam to gravelly fine sandy loam, 1-20% slopes, slightly to moderately eroded. <u>Edgemont</u> fine sandy loam to gravelly loam, all slopes, slightly or moderately eroded. <u>Georgeville</u> silt loam to gravelly fine sandy loam, 1-20% slopes, slightly or moderately eroded. <u>Hiwassee</u> silt loam to gravelly sandy loam, all slopes, slightly or moderately eroded. <u>Linker</u> silt loam to gravelly loam, all slopes, slightly to mod. eroded.	Loblolly pine Shortleaf pine Red oaks White oaks Black walnut Black cherry Redcedar	80 70 70 60 - - 50	Loblolly pine Shortleaf pine Redcedar Red oaks 3/ Black walnut 3/

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY Page 2 of 3

Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitability for Planting (5)
		Tree Species 1/ (3)	Site Class (4)	
(1)	(2)	(3)	(4)	(5)
3o7 (Cont'd)	Wickham silt loam to gravelly loam, all slopes, slightly to moderately eroded.			
3x8 Stony upland soils with moderate high potential productivity; moderate to severe equipment limitations and erosion hazard, and moderate seedling mortality on hot exposures; suitable for southern pines or upland hardwoods.	Georgeville stony silt loam, all slopes, slightly or moderately eroded. Hiwassee stony silt loam, all slopes, slightly or moderately eroded. Linker stony fine sand to sandy loam, all slopes, slightly to moderately eroded. Wickham soils cobbly, 1-20% slopes, slightly or moderately eroded.	Loblolly pine Shortleaf pine Red oaks White oak Black walnut Black cherry Redcedar	80 70 70 60 - - -	Loblolly pine Shortleaf pine Redcedar Red oaks 3/ Black walnut 3/
3w9 Excessively wet soils with moderately high potential productivity; severe equipment limitations and seedling mortality; suitable for southern pines or hardwoods.	Roanoke silt loam (mounded) to fine sandy loam, 0-3% slopes.	Loblolly pine Sweetgum Water oaks Nuttall oak Shumard oak	80 80 80 80 80	Loblolly pine Sweetgum Water oaks Shumard oak Nuttall oak
3x9 Stony, cobbly and gravelly soils with moderately high potential productivity; severe equipment limitations and seedling mortality; suitable for southern pines or hardwoods.	Ennis soils, cobbly or gravelly to stony silt loam.	Shortleaf pine Red oaks White oak Redcedar Loblolly pine Black walnut Black locust Black cherry White ash Sweetgum Sycamore Cottonwood Water oaks River birch	70 70 70 50 - - - - - - - - - -	Shortleaf pine Loblolly pine Red oaks Black walnut Black locust White ash White oak Sweetgum Cottonwood 4/ Sycamore 4/
3r9 Steep loamy soils with moderately high potential productivity; moderate to severe erosion hazard and equipment limitations; moderate seedling mortality on hot exposures; suitable for southern pines and upland hardwoods.	Alamance silt loam to gravelly fine sandy loam, above 20% slopes, slightly to moderately eroded.	Loblolly pine Shortleaf pine Red oaks White oaks Redcedar Black walnut Black cherry	80 70 70 60 50 - -	Loblolly pine Shortleaf pine Redcedar Red oaks 3/ Black walnut 3/
4d2 Moderately rolling to steep, shallow upland soils with moderate potential productivity; moderate to severe erosion hazard, equipment limitation and seedling mortality; suitable for southern pines and redcedar.	Coldston silt loam to stony fine sandy loam, all slopes, slightly or moderately eroded.	Loblolly pine Shortleaf pine Redcedar	60 60 40	Loblolly pine Shortleaf pine Redcedar
4o7 Upland soils with moderate potential productivity; no serious management problem; suitable for southern pines or upland hardwoods.	Braddock gravelly loam, 3-20 percent slopes, slightly or moderately eroded. Davidson loam, all slopes, slightly or moderately eroded. Herndon silt loam to gravelly fine sandy loam, all slopes, slightly or moderately eroded. Porters stony silt loam, all slopes, slightly or moderately eroded. Tate silt loam to gravelly fine sandy loam, all slopes, slightly to mod. eroded.	Loblolly pine Shortleaf pine Red oaks White oak Redcedar Black walnut Black cherry	60 60 60 60 40 - -	Loblolly pine Shortleaf pine Redcedar Red oaks 3/ Black walnut 3/

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

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Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitability for Planting
		Tree Species <u>1/</u>	Site Class	
(1)	(2)	(3)	(4)	(5)
<u>4x8</u> Stony upland soils with moderate potential productivity, moderate to severe erosion hazard and equipment limitations, and moderate seedling mortality on hot exposures; suitable for southern pines or upland hardwoods.	<u>Braddock</u> stony loam, all slopes, slightly or moderately eroded. <u>Herndon</u> stony fine sandy loam, all slopes, slightly or moderately eroded. <u>Porters</u> stony silt loam, all slopes, slightly or moderately eroded.	Loblolly pine Shortleaf pine Red oaks White oaks Redcedar Black walnut Black cherry	60 60 60 60 40 - -	Loblolly pine Shortleaf pine Redcedar Red oaks <u>3/</u> Black walnut <u>3/</u>
<u>4r9</u> Steep loamy soils with moderate potential productivity; moderate to severe erosion hazard and equipment limitations, and moderate seedling mortality on hot exposures; suitable for southern pines and upland hardwoods.	<u>Braddock</u> gravelly loam, above 20 percent slopes, slightly to moderately eroded.	Loblolly pine Shortleaf pine Red oaks White oaks Redcedar Black walnut Black cherry	60 60 60 60 40 - -	Loblolly pine Shortleaf pine Redcedar Red oaks <u>3/</u> Black walnut <u>3/</u>
<u>5d3</u> Moderately rolling to steep, shallow, upland soils with low potential productivity; moderate to severe erosion hazard and equipment limitations and severe seedling mortality; suitable for southern pines and redcedar.	<u>Pickens</u> fine sandy loam or stony loam, all slopes, slightly to moderately eroded.	Shortleaf pine and Loblolly pine (both for small diameter rotation) Redcedar Native vegetation	50 50 30 -	Loblolly pine Shortleaf pine (both for small diameter rotation) Redcedar
<u>1/</u> Red oaks include northern red oak, southern red oak, black oak and scarlet oak.				
<u>3/</u> Confine plantings to "cool" slopes, coves, benches and slope bases.				
<u>4/</u> Field plantings only; do not interplant or underplant.				

